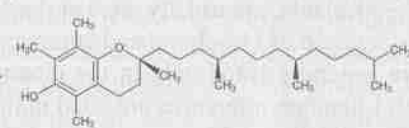


MERCK INDEX

Title → **Chemical Abstracts Registry Number** → **Chemical Abstracts Name**

Monograph number → **9571. α-Tocopherol.** [59-02-9] (2*R*)-3,4-Dihydro-2,5,7,8-tetramethyl-2-[(4*R*,8*R*)-4,8,12-trimethyltridecyl]-2*H*-1-benzopyran-6-ol; (+)-2,5,7,8-tetramethyl-2-(4',8',12'-trimethyltridecyl)-6-chromanol; *R,R*-*R*-α-tocopherol; *d*-α-tocopherol; 5,7,8-trimethyltocol; Optovit; Tocovital. **C₂₉H₅₀O₃**, mol wt 430.70.

Percentage composition → C 80.87%, H 11.70%, O 7.43%. Most bioactive of the naturally occurring forms of vitamin E, *q.v.* Rarest sources are green vegetables, grains, and oils, particularly palm, safflower and sunflower oils. Isolated from wheat germ: H. M. Evans *et al.*, *J. Biol. Chem.* **113**, 319 (1936). Structure: E. Fernholz, *J. Am. Chem. Soc.* **59**, 1154 (1937); **60**, 700 (1938). Synthesis of *dl*-form: P. Karrer *et al.*, *Helv. Chim. Acta* **21**, 520, 820 (1938); F. Bergel *et al.*, *J. Chem. Soc.* **1938**, 1382. Total synthesis of all 8 stereoisomers: N. Cohen *et al.*, *Helv. Chim. Acta* **64**, 1158 (1981). Clinical trial in Alzheimer's disease: M. Sano *et al.*, *N. Engl. J. Med.* **336**, 1216 (1997); to improve immune function in healthy elderly: S. N. Meydani *et al.*, *J. Am. Med. Assoc.* **277**, 1380 (1997). Review of bioavailability from vitamin E supplements: M. G. Traber, *BioFactors* **10**, 115-120 (1999). Review of clinical trials in heart disease: W. A. Pryor, *Free Radical Biol. Med.* **28**, 141-164 (2000).

Structure → 

Alternate names and/or trademarks (capitalized) of title compound → **Physical data for title compound**

Derivative Compound Registry Number → Transparent needles, mp 2.5-3.5°. $[\alpha]_{D}^{25}$ -3.0° (benzene); $[\alpha]_{D}^{25}$ +0.32° (ethanol). **Acetate.** [58-95-7] Spondyvit. C₃₁H₅₂O₃; mol wt 472.74. Light yellow oil. Crystallized at -30° as needle-like crystals, mp 26.5-27.5°. $[\alpha]_{D}^{25}$ +0.25° (c = 10 in chloroform); $[\alpha]_{D}^{25}$ +3.2° (in ethanol).

Alternate names and/or trademarks (capitalized) of the derivative compound → **Derivatives of title compound**

Non-medical use → **USE:** As an antioxidant in vegetable oils and shortening.

Therapeutic category (in humans) → **Therapeutic category (veterinary)**

Derivative Compound Literature references → **dl-α-Tocopherol acetate.** [52225-20-4] *dl*-Tocopheryl acetate; Detulin; Ephynal; Eusovit; Evion. Comprehensive description: B. C. Rudy, B. Z. Senkowski, *Anal. Profiles Drug Subs.* **3**, 111-126 (1974). Pale yellow, viscous liquid. mp -27.5°. d_4^{25} 0.9533. $b_{p,0.01}$ 184°; $b_{p,0.025}$ 194°; $b_{p,0.1}$ 224°. n_D^{20} 1.4950-1.4972. uv max (cyclohexane): 285.5 nm. Practically insol in water. Freely sol in acetone, chloroform, ether. Less readily sol in alc.

Physical data for derivative → **THERAP. CAT:** Vitamin E supplement.
THERAP. CAT (VET): Vitamin E supplement.